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ICT, open government and civil society

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Abstract:

This paper explores the rise of ICTs as instruments of government reform and the implication of their use from the vantage point of the relations between democratic governance, the aims of Buen Vivir, and the role of civil society. We discuss some of the contradictions inherent in the nature and organisation of ICTs, particularly in connection to such e-government projects as "smart cities" and participatory budgeting, and focus on the centrality of social relationships, political agency and the operations of social capital as elements that determine the success of these initiatives in the promotion of democratic practice. We also examine the relevance of social capital and user control to organisational structure and the ways in which structure relates to social innovation and the access, transfer and diffusion of knowledge as a common good. The paper concludes with a discussion of the significance of ICTs as instruments of civil empowerment and introduces the notion of "generative democracy" as a means of re-imagining and realigning the role and powers of the state and civil society for the social production of goods and services.

Keywords: buen vivir, ICT, generative democracy, open government, smart cities, social economy

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Introduction

With the rise of information and communication technologies (ICTs), a fundamental transformation has taken hold of the knowledge processes that define the operations of nearly every facet of contemporary life. Whether in the industrialised North, or in the transitional economies of the South, information and communication technologies are remaking economics, politics and social life itself. Today, the technological organisation, control and dissemination of knowledge and information has taken centre stage in the growing debate concerning the nature and direction of democratic governance, of economic and social development, and ultimately of the limits and prospects for personal freedom in today's digital culture.

This paper was originally written as part of the FLOK Project (Free/Libre, Open Knowledge) in Ecuador, which explored the adoption of a *social knowledge economy* to transform the country's productive matrix and to support the concept of *Buen Vivir* (Good Living) as a prime aim of government. But it is also clear that our findings and the analysis presented in the FLOK paper have relevance far beyond the Ecuadorian context and relate to profound changes in how governments, technology and civil society interrelate around the question of democratic governance and its relation to co-operative and peer-to-peer forms of civil organisation. The concepts of *Buen Vivir* and social knowledge economy have a universal resonance in today's digital world.

Throughout history, technology and democracy have been intimately linked. In our time, these links are more explicit, more contested and vastly more complicated than anything seen before. The rise of the surveillance state and the simultaneous rise of new forms of political organisation and action are testaments to these changes. In this context, ICTs—and more precisely, the organisation and mobilisation of knowledge—have a profound impact on what we might call the political economy of knowledge. Moreover, if we are speaking of a social knowledge economy, an economy in which knowledge is understood and promoted as a common good, the role played by ICTs is obviously pivotal.

In the discussion that follows, we examine these questions within the framework of democratic governance and the relation between the state and the broader civil society in both defining and pursuing what we have termed the "common good". We propose that the use of ICTs—whether for good or ill—is fundamentally dependent on the character of this relationship and the degree to which state and civil society may be said to share a common purpose in the conscious pursuit of shared social aims.

More precisely, we explore the question of the democratisation of governance—and thus of civil power—and the specific role that the social/solidarity economy plays as a particular configuration of civil society in this process.[1] The advent of digital technology is a major force in this transition, as is the explicit recognition by the state that aims such as *Buen Vivir* and social knowledge entail a fundamental affinity between the aims of government on the one hand and those of the social/solidarity economy on the other.

The question of governance—in particular the notions of "open government" and "open data"—is absolutely central to this debate as is the relation between government and civil society. Both are connected to the concept of *Buen Vivir*, which entails a radical transition not only to a new conception of political economy, but also to a new conception of democratic practice. This approach moves beyond deliberative or representative forms of decision-making to a conception of democracy as a means of distributed social production. This, we call *generative democracy*. It is within this framework of radical democratisation that we situate the ultimate relevance and aims of ICTs as instruments of governmental restructuring and reform.

What will determine whether or not ICTs promote or inhibit open government, in the sense of genuine transparency and public accountability, is not technological, but political. And if we are speaking of open government in the sense of democratic governance and the widest possible distribution of democratic practice, we are not talking about citizen input into a system from the "outside". Rather, we are speaking of the transformation of that system into a continuum of democratic production through the application of social economy principles extending from the individual citizen and her community, through the mediating structures of the social/solidarity economy, to the formal structures of the state. The creation of open, "interstitial spaces", in which autonomous civic institutions may operate and collaborate with the state for this purpose, is key to this function as will be shown below.[2]

In short, open government is much less about information input than it is about *democratic output*—an idea that will be explored more fully in Section 4.

What role do ICTs play in this transition? More to the point, *can* the aims of democratisation realistically be served given the existing power dynamics that are embedded within the structure of these technologies? The answer to this question ultimately depends on the purpose driving their use and the extent to which the democratising potential of these technologies is manifested in the interface between the state and the social economy and how their respective roles are organised to realise the common good that both binds and differentiates them.

Moreover, the translation of these principles and ideas into effective and systemic transition to a social knowledge paradigm entails a comprehensive re-evalution and re-formulation of public policy. Recommendations for policy changes in this direction have been outlined in the original FLOK research paper with respect to the case of Ecuador (Restakis, 2014). Similarly, policy changes would need to be adapted for the implementation of these ideas within the particular context of other countries and locales, whether at local, regional or national levels.

What ICTs hold for the future of democratic practice and the development of knowledge as a common good are far from certain. For many, open government and open data favour the adoption of new social patterns and the emergence of economic, technological and political formations that represent more democratic, decentralised and commons-based alternatives to the concentrations of knowledge and power we witness in the capitalist knowledge economy.

On this view, the rise of the Internet and the ubiquity of personal computers herald the dawn of a new kind of democratic polity. For the first time in history, technology has made possible the unrestricted access to human knowledge and to global communication that places the power of collaboration and the means to exercise this power in the hands of the common citizen.

For others, the ongoing centralisation of the Internet and ICTs generally, prefigures a very different future—one in which state and corporate surveillance and control destroy the very freedoms that open access to information and communication are meant to uphold. These are themes we explore in detail below.

In what follows, we first undertake an analysis in Section 1 of ICTs and how they have been used as an instrument for open government, with a particular focus on "smart cities" and participatory budgeting as instances of this application. In Section 2, we track the evolution of how ICTs have been used by civil society organisations to advance their own work, including the promotion of political aims. In Section 3, we examine the nature of social knowledge and ICTs in relation to the organisational structures and aims of the social organisations that are to make use of them. Special attention is paid to the questions of co-operation, sharing and commons values; their relationship to organisational structure; and how knowledge is accessed and diffused as a force for progressive social change. Finally, in Section 4, we examine the connection between forms of technology and forms of political economy and the transforming potential of digital technology with respect to the design, organisation and production of goods and services, with particular emphasis on the public economy.

The common thread that runs through all the sections is how ICTs can be a means of promoting a more open, just and egalitarian society through the use of generative democracy. The common concern that also runs through the document is the many ways in which information and communication technologies, as currently structured, are equally (if not more) amenable to uses that contradict and undermine these aims.

The ultimate purpose of this paper is to explore the development of a new political model based on *commons* values and the creation of knowledge as a common good. This represents a major shift in neo-liberal policies both in Latin America and around the world, and constitutes a foundation for placing a country's socio-economic development at the service of the public good and not merely the enrichment of a privileged elite. The FLOK project in Ecuador is a springboard for understanding and addressing the implications of these issues in a wider context.

Technology is never neutral. It serves the interests and purposes of those who have the power to mould it and to wield it. Our purpose is to show what it means when that power is placed in the hands of citizens and their civil institutions as a strategy for increasing the depth, range and meaning of democratic practice in a world increasingly dominated by information technology.

Section 1 – Promoting open government: The role of information and communication technologies (ICTs)

Widely viewed as a cornerstone of contemporary debates on participatory democracy, open government is closely linked to democratic reform movements and a renewed focus on citizen participation. While the concept of open government dates back to the European Enlightenment, the ideal of open government has expanded significantly with the rise of ICTs. Contemporary claims supporting the value of open government are rooted in the notion that citizen participation enhances public scrutiny and reduces government corruption. Indeed, as Ecuador's National Plan for Good Living makes clear:

> A democratic, participatory government requires the active participation of citizens and strong social movements working in open networks to address both local and national issues. Participatory democracy aims for a sort of equality that enables reciprocity among its members. This will integrate the different stakeholders in a process of dialogue in which conflicting interests and goals are assessed and ranked according to an array of criteria defined publicly among peers. (National Secretariat of Planning and Development, 2013: 23)

Implicit in this statement is the creation of new forms of democratic governance that are the pre-requisites for the development of an open knowledge society.

However, the ideal of participatory democracy today is about far more than simple representation. The possibility for citizens to co-produce and partner with government is becoming a reality. In the age of social networks and peer-to-peer practices, governments are increasingly expected to develop institutional frameworks that provide citizens with a means to develop and augment public services and even co-produce services rendered on their behalf.

This includes both user-driven e-services and the introduction of community tools and resources that can provide citizens with a means to have their voices heard. Indeed, the challenge for open government today is less about finding new solutions to the transmission of government services, but rather more about empowering citizens to become *agents*, as opposed to subjects, of governance.

A. Towards open government

In contrast to neo-liberal conceptions of socio-economic development that stress the primacy of privatised capitalist markets, we advocate a vision of a bottom-up democratic model that unleashes the productive capacities of a mobilised citizenry through the organisational structures of the social economy. Such a model challenges the prevailing view that closed hierarchical institutions are the best systems for developing knowledge and innovation. Instead, we propose that open, distributed, and co-operative models of production—whether for material or immaterial goods—are far more effective at propelling the kind of social and economic development envisioned in Ecuador's National Plan. This implies a kind of development and growth that is supported by engaged citizens, civic

institutions and a wide range of policy actors in a society of the commons. The ultimate goal of *Buen Vivir* is to defend and strengthen society by guaranteeing equitable access to goods, opportunities and conditions of life:

> Socialism for Good Living questions the dominant pattern of hegemonic accumulation, i.e., neo-liberal models of production, growth and distribution. We propose a transition toward a society in which life is the supreme asset. This demands a deep democracy and the constant involvement of its citizens in the country's public affairs. It is based on the pursuit of the common good and individual happiness, rather than excessive accumulation and consumption. (National Secretariat of Planning and Development, 2013: 22)

Of course, Ecuador is not alone in its desire to expand democratic participation and to develop new social and political thinking on participatory governance. In the wake of the 2008 economic crisis, grave doubt has been cast on the credibility of neo-liberal models of political economy popularised in the 1980s under U.S. President Reagan, and U.K. Prime Minister Thatcher. Building on recent literature on open government, there is rising interest in reforming the practices and institutions that now define modern democracies. This includes increased advocacy for greater openness, greater transparency in political decision-making, and the reform of public services.

Policies advocating open government in the sense described here is one consequence of this faltering trust in how governments operate. The use of technology in the furtherance of these aims has become a basic tenet of governmental reform, and the idea of open data has now become integral to the concept of open government. But the political dimensions of open government are quite distinct from the uses of technology. This difference is crucial for how we understand the relation between access to information on the one hand and government transparency and accountability on the other. Open government does not necessarily entail open data—and vice versa. As eloquently stated by Yu and Robinson (2012):

> … open government policies have blurred the distinction between the technologies of open data and the politics of open government. Open government and open data can each exist without the other: A government can be an open government, in the sense of being transparent, even if it does not embrace new technology (the key question is whether stakeholders know what they need to know to keep the system honest). And a government can provide open data on politically neutral topics even as it remains deeply opaque and unaccountable. The Hungarian cities of Budapest and Szeged, for example, both provide online, machine-readable transit schedules, allowing Google Maps to route users on local trips. Such data is both open and governmental, but has no bearing on the Hungarian government's troubling lack of accountability. The data may be opening up, but the country itself is sliding into authoritarianism.
>
> … technological enhancements alone will not resolve debates about the best priorities for civic life, and enhancements to government services are no substitute for public accountability.

This clarification of open government and open data is of fundamental importance because it places the focus where it belongs—on the nature of the decision-making structures that define the political system itself. It matters greatly whether open government merely means citizens providing input into a highly centralised and authoritarian state system, as opposed to developing governance structures that de-centralise and distribute the decision-making operations of that system.

B. ICTs and community mobilisation

One of the main goals of the FLOK project was to achieve social transformation through policy interventions following principles outlined in the National Plan. Linking the notion of open government to ICTs and the application of technological innovation, the FLOK Society project advocated experiments in new forms of participatory democracy—both economically and socially. By democratising access to knowledge through the use of open licensing, for example, the FLOK approach sought to empower communities to participate in the production and consumption of knowledge without limitation. Indeed, as Castells (2007) argues, the rise of socially-driven ICTs has sparked new social movements that now have the capacity to build collaborative networks at multi-scale levels, amplifying the impact of insurgent politics across a wide spectrum of socio-political environments.

ICTs have introduced a range of new capabilities for collaboration and consequently for shaping social change. The growth of platforms that leverage next generation communication, data sharing and application development, for example, has opened up new opportunities for bottom-up civic engagement across a range of ICT driven public services. In the United States, the Open Government directive from President Obama (2009) has its foundation in regulations such as the Freedom of Information Act, the Paperwork Reduction Act, and the e-Government Act (McDermott, 2010). In Europe and East Asia, robust government-driven investments in designing and developing "smart cities" have become critical to guiding and solving complex social problems. In Italy, new initiatives and legislation have accompanied novel conceptions of the City as a Commons and building on the principles and practices that have accompanied the digital revolution.[3]

Smart cities – Models, methods and alternatives

Given the fact that an estimated 70% of the world's population will live in cities by the year 2050, it is understandable that "smart" urbanisation has become a key feature of national planning. As a growing number of analysts suggest, the intelligence of cities "resides in the increasingly effective combination of digital telecommunication networks (the nerves), ubiquitously embedded intelligence (the brains), sensors and tags (the sensory organs), and software (the knowledge and cognitive competence)" (Mitchel, 2007: 5). To this, we would add the central role of social capital as a key feature of civic networks that provide the social circuits through which social knowledge—knowledge as commons—is accessed, adapted and shared.

Perhaps the central feature of smart cities is a unique capacity to respond to feedback generated through data in order to change the action or behavior of the system as a whole. As Chourabi et al. (2012) observe: "While systems in industrial cities were mostly skeleton and skin, postindustrial cities—smart cities—are like organisms that develop an artificial nervous system, which enables them to behave in intelligently coordinated ways." Put differently, smart systems are emergent wholes made up of interdependent sub-systems of networked resources that together afford scaled technological and human "intelligence". As the OECD (2013: 4) explains, smart technologies refer to applications or services that are "able to learn from previous situations and to communicate the results of these situations to other devices and users".

Building on layers of fixed Internet protocol networks, "always on" broadband networks, and more recently wireless satellite and mobile networks, smart technologies leverage massive amounts of data generated by billions of Internet and mobiles devices and services around the world. Commonly portrayed as the next stage in Internet technologies, smart technologies include:

1. Machine-to-Machine (M2M) communication across mobile devices.
2. Large-scale data processing via "Cloud Computing" in the processing and display of data.
3. Data analytics, linked data and "Big Data" to correlate and interpret flows of knowledge and information.

What makes the idea of smart cities particularly important to open government is that smart cities demonstrate a shift in the relationship between citizen engagement and the evolution of public management. Part of this shift in thinking reflects an enlarged interest in designing systems that enable citizens to have a greater role in decision-making and governance. Hollands (2008: 306), for example, makes the point that smart cities represent "territories with a high capacity for learning and innovation" that depend upon the creativity of their population, as well as "their digital infrastructure for communication". This too, is greatly affected by the level of social capital in a community and the networks of co-operation, reciprocity and trust that facilitate mutuality and the pursuit of shared goals.

Hollands also articulates a growing intellectual movement that is refocusing the discussion on smart cities from the promotion and administration of services to questions of *democratic governance* (Allwinkle and Cruickshank, 2011). Overlapping an expanded notion of government accountability is the question of new tools and technology that can now enable more potent models of participatory democracy (Osimo, 2008; Obama, 2009). Alongside questions of open data and increased transparency, there are new possibilities for strengthening the capacities of communities and stakeholders to play far more significant roles in the political life of their communities.

ICTs may be critical to serving as platforms for communication and collaboration. However, it is the people themselves and the networks of co-operation, sharing and trust in which they participate, who solve (or do not solve) social problems. Beyond the affordances of technology, we argue *that the key to truly smart cities is their capacity to support social capital and sociocultural development through a mobilised citizenry*. Accordingly, smart cities have the potential to remake democratic processes and promote political inclusion by connecting citizens with one another and with their government. There is, however, a darker side to this question.

One of the key challenges confronting the development of both open government and smart cities is "top-down" design. The idea of smart cities has been widely criticised as being essentially neo-liberal-driven urban spaces and for putting an excessive and unwarranted weight on economic values as the sole driver of urban development. Indeed, Lipman (2009) calls attention to the ways in which neo-liberal policies have used cities to concentrate and manage capital accumulation. As she observes, cities have become "concentrated expressions of the dynamics of extreme inequality, marginality, and centrality that characterise the global economy as a whole" (p. 242).

Harvey (1973: 16) has suggested that the world's cities mirror systemic social stratification, as a "vantage point from which to capture some salient features operating in society as a whole". This includes social hierarchies of race and class in structuring urban spaces. Closely linked to this critique is the fact that much of the planning and design of smart city systems, including the technology to be deployed, is owned and controlled by multinational corporations with little understanding or investment in the idea of open and democratically structured systems.

The development of ICTs for purposes of e-government and the introduction of smart city systems have now become a kind of gold standard for promoting more open and efficient government. But without adequate safeguards, and given the current dominant role of private corporations in the design, development, and application of these systems, the implementation of ICTs on such a comprehensive scale also invites serious abuses of the right to privacy and freedom from surveillance for citizens. The technology that makes possible such a comprehensive centralised accumulation of data is the same technology that enables the surveillance of even the most minute and intimate aspects of the lives of individuals.

Given these concerns, it is vital that careful measures are taken to safeguard against the use of ICTs and smart city systems to undermine civil rights and citizen's rights to privacy. The revelations of Edward Snowden in this regard are a clear warning of what is at stake. Specific recommendations for such safeguards are thus included in the appendix for this section.

Participatory budgeting

One way in which ICTs are being used to mobilise citizen participation in public affairs and promote innovation in democratic practice is through participatory budgeting (PB). First developed in Porto Alegre in Brazil in 1989, participatory budgeting has now spread to uses at national, regional and local levels around the globe, with more than 1,500 municipalities initiating the process in Latin America and hundreds more in Europe (Sintomer et al., 2010). And while the general aims and principles of participatory budgeting are common, such as increased citizen participation, increased transparency and redistribution of resources (Cunha et al., 2010), the methods and mechanisms in use are quite diverse. So are the outcomes.

As might be expected, ICTs have played a substantial role in all facets of the participatory budgeting process, from the sharing of information, to the process of discussion and deliberation, to voting and decision-making. What is of particular interest for our discussion, however, is that participatory budgeting has been most effective when linking ICT use with face-to-face encounters between citizens, political representatives and other stakeholders as a fundamental aspect of the process. Moreover, in those cases where the process was centred on ICT use as the dominant factor, the participation of citizens suffered (Cunha et al., 2010). In most cases, the role of ICTs in participatory budgeting is purely instrumental and subordinated to the face-to-face interactions among stakeholders within carefully developed "dialogue spaces" wherein the true substance and meaning of the participatory budgeting process takes place. This substance and meaning has as much to do with the building of new social relationships and the expansion of collective citizen knowledge as it has with the transmission of the individual citizen's desires to government.

> … the general worldwide scenario for PB has favoured the construction of spaces for face-to-face encounters, with the aim of reinforcing social ties and relationships between administrators and local residents that have been curtailed or made difficult. These "warm" spaces have proved extremely positive in the construction of a social pedagogy (Schmidt, 2000) and a negotiated solidarity (Abers, 2000)…

This is a point worth emphasising, and it reinforces our overall theme on the centrality of social relations and the generation of social capital as indispensible to the transformation of power relations between citizens and the state. This is also borne out by a finding of the World Bank in its 2007 review of PB in Latin America, in which a key factor of success in the process is,

> … a tradition of participation and cooperation within and among local civic associations or indigenous customary organisations that has not been destroyed by guerrilla warfare or clientelist politics.

For all its positive elements, participatory budgeting is not without its shortcomings. As the World Bank report points out, the PB process, particularly the degree to which ICTs play a dominant role, can also reinforce existing disparities of power and influence between sections of society that have more or less fluency and access to digital technology and the internet. Poorer sections of society have a distinct disadvantage in this regard, and pro-active efforts to educate and engage the poor in the use of the technology are required to overcome this disparity.

The last point that needs to be highlighted is the high degree to which the participatory budgeting process is affected by the specific role played by government. One of the criticisms leveled against PB is the degree to which state actors control the process of citizen engagement. In recent

years, many governments have sought to curtail both the range and the depth of citizen involvement in PB by carefully orchestrating the terms of engagement in ways that minimise true power sharing. This is true in Porto Alegre, the birthplace of PB, where the administration replacing the Worker's Party (PT) in the 2006 elections failed to take an active part in the citizen assemblies and discontinued the practice of presenting an annual accounting of how previous PB decisions have been implemented. These practices have, in turn, led to accusations of lack of accountability (Fox, 2009).

Clearly, the adoption of participatory budgeting is a prime example of how e-government and the social use of ICTs can be used as a means of extending democratic practice through increased citizen engagement in a key area of policy making (the budget). But experience is showing that ICTs on their own, regardless of how they are designed, are dependent on the quality of social dialogue and the activation of face-to-face relations among citizens in order to realise the democratising aims of the process. In other words, it is the presence of an active and autonomously relating community of citizens that is the key to success and to real power sharing, not the organising role of the state, nor technology.

Let us now look at the question of e-government and citizen participation from an explicitly activist citizen perspective in which citizens have control of the process.

Case study: The Citizen Municipal Observatories (Observatori Ciutadà de la Administración) of Spain

Throughout Spain today a remarkable movement of Citizen Observatories has radicalised the smart city and participatory budgeting concepts by placing ICTs in the hands of citizens to monitor, comment and, if necessary, organise around the operating budgets of their local municipalities. The OCAs operate using an easy to use, open-source software programme (OCAx) that is capable of monitoring any civic administration, anywhere. As stated on the OCAx website,

> OCAx is a tool to help townspeople empower themselves with the knowledge local councils deny us through bureaucracy and opacity.
>
> Citizens' Municipal Observatories (OCMs) are groups of people from the same municipality dedicated to foment transparency and citizens' participation in their locality. We think of them as open, organised and self-managed spaces, useful to promote citizen driven audits because they build on grassroots control, especially in budgetary matters and in everything that has to do with public debt.
>
> OCMs are citizen organisations that are born with the intent to facilitate participation in the management of our public bodies, starting with those who are closest: the councils.

In the context of a closed and unresponsive political and bureaucratic environment, the Citizen Observatories serve as a key tool not only for promoting openness and transparency of local government administrations, but as a means of catalysing and focusing citizen mobilisation. Each Citizen Observatory operates autonomously and is wholly self-organised, deciding for itself how it will work and for what ends. This radical and localised democratic practice is a signature characteristic. But so too are the citizen's assemblies that have evolved around the software programme that meet periodically to discuss the issues that emerge, the ways in which the software and the citizenry can engage directly with municipalities in the redress of issues and, when necessary, to engage in direct political action when that is required. As in successful participatory budgeting programmes, the opportunity for citizens to meet and deliberate face-to-face is central to this process.

The OCAx software enables not only a detailed analysis and breakdown of budgets, priorities, lines of expenditure and revenue, etc., but also a means to pose questions and offer suggestions directly to municipal officials. Since it's inception, the project has succeeded in forcing budget transparency through public campaigns in municipalities when it was not forthcoming, in defeating the implementation of policies that were broadly unpopular among local citizens, and in advancing projects that created new commons and citizen initiatives.

Clearly, the Citizen Observatories take the "smart city" concept quite a few steps beyond the better or more efficient management of civic services. They embody the notions of citizen empowerment and direct democracy facilitated by technology that is designed for this purpose.

Developed and controlled by citizens through the use of open source software and supported through the provision of both technical and organisational assistance by OCAx personnel and volunteers, the Citizen Observatories are now operating in over 50 Spanish towns and cities. The OCAx software, along with the model of localised citizen assemblies as the political extension of this work, is now also being introduced in Greece where closed government, and a culture of endemic bureaucratic corruption, is ripe territory for its use.

The value of ICTs for developing and sustaining political formation and citizen engagement is not reserved for cities alone. What is clear is that the material conditions for the formation, circulation and utilisation of social capital in political engagement are highly impacted by the potential of ICT networks. In turn, how the structure of social organisation itself impacts the practical utilisation of ICTs in pursuit of these social aims is also significant and is explored in Section 3 of the paper.

Information has become the vital element in a "new" politics and economy that both links and transforms space, knowledge and capital. However, Castells (2000) reminds us that the central issue for leveraging change across institutions and communities today—even in an age of networks—remains that of power. And, as indicated for example in research findings concerning the use of ICTs by civil society groups to contest oil company activities in Guatemala (Garcia-Ruano et al. 2013), the utility of ICTs for promoting social change is limited unless civil groups are able to confront with organised political force the institutional and political structures that embody repression and the curtailment of political freedom. These writers emphasise that access to technology or a new communication medium represents a real opportunity for development and power mobilisation *only if these platforms become genuinely relevant to people and empower them to achieve their goals*.

Section 2 – Information technologies and institutional innovation

Modern societies utilise a broad collection of information and technologies that are more or less concentrated and segmented in terms of production, access and application. This section explores the use and potential of the Internet in relation to its contribution to social innovation in rural sectors.

There is no question that the Internet has given a new voice to actors who had no access to services in the past and were often not even recognised as citizens. But the possibility that technology will shift towards progressive social and political organisation does not happen as a matter of course. It goes hand in hand with community empowerment, the promotion of citizen values, and the development of a national conscience.

With respect to this, Ecuador's community info-centres and their action networks have shown that traditional patronage models can be challenged. The centres have become a new space for the development of citizenship and political participation through digital-literacy programmes and the expanded use of the Internet and they offer an example of citizen innovation and mobilisation that has wide relevance.

Case study: Community info-centres, institutional innovation and access to information technologies

Within civil society, political action groups are among the many associations that establish contact at an information centre as a key component of their political work and to put pressure and/or adapt to the actions and objectives of the state.

This type of engagement at the local level is now an essential feature of how civil society organisations expand and deepen the organisational potential of civil society as a whole. This kind of political process via the Internet necessarily entails practices that are independent of the direct control of the state. This is inherent in the autonomous character of civil society organisations. The kind of interaction that is facilitated through electronic communication is part of a larger change pattern in the political process, starting from the local dynamics that comprise economic development in rural areas.

The new technology-based solutions provide possibilities that did not exist ten years ago. In this year's *Report on Information Economics*, the potential influence of ICTs is taken into account for the creation of new employment and to increase productivity and the range of entrepreneurial activities that are relevant to rural communities. In this context, the structure of political action among civil society organisations in rural communities increases the complexity of their political processes and the relations among political actors.[4]

The Community Information Centres seek political counterparts within the township authorities and have developed community facilitators, with successful results. The use of the Internet by rural citizens has increased as has its applications. Consequently, the richness and diversity of organisational processes, and the availability of new communication spaces developed in the locality, have proved to be fertile soil for generating new ICT use and for providing access to information and extending the dissemination of knowledge. The centres have also evolved into spaces for the dissemination of local information and communication.

Past experiences and research demonstrate that these tools in the hands of organisations and projects that are rooted in local experience and relationships have a far better chance to contribute to community well-being and development. Access centres (public/semi-public) have become spaces for further contact and sharing, for innovation, for promoting creativity and entrepreneurship, and for supporting micro-enterprises (Burch, 2007).

Examples of these are the local enterprises fostered from the Infocentros. This is the case of San Placido, Manabi, with the development of candy production or Dulcinea in the province of Bolivar. San José del Tambo has become a centre for chocolate, the Infocentro Valle Hermoso has been instrumental in the creation of a jam factory, and in Santo Domingo de los Tsáchilas peanut-based products have been developed by local enterprises. Members of various associations are also using the Infocentro to market and sell their products through social networks.[5] Infocentros are playing a key role in this new generation of micro entrepreneurs and their services help them to achieve economic independence from their families, to stimulate the local economy, and to become an essential part of the productive transformation of the country.

To cite another example, the Canchagua Infocentro from Cotopaxi and the leaders of the women's organisation, Hope for the Future, are developing projects to improve the lives of their families, including activities to enhance agricultural and livestock production in order to foster sustainability for families in the area. All the programmes set in place are done through the use of ICTs, and by their own initiative organisation members have been working jointly with the Ministry of Agriculture to develop the Horticultural Gardens Project with organic vegetables to market them in the surrounding communities.

However, these technologies do not reach everyone—in the sense that not everyone has the same skills to make use of them. There is a gender-generational dynamic around the use of ICTs and it extends to the barriers regarding the specific role of women in the community and this, in turn, has led to a change in attitude in this regard.
ICTs have facilitated greater social inclusion for populations with few resources and for target users, such as migrants and their families, they are fulfilling the mission for which the info-centres were created. *However, the benefit is not found within the ICTs as such, but rather in their potential to create powerful institutional networks, as well as to build social and economic capacity*.

The success of the infocentres, has improved local/global connectivity. Consequently, it is strategic to design programmes that furnish infocentre mediators with better tools and to support small entrepreneurs so that they have access to better economic, technologic and pedagogic resources. It is also important to accelerate the pace of these social/solidarity economy experiences and to provide resources that favour communication, exchange and alliances among cyber-cafes, information centres, schools, universities and libraries.

The provision of opportunities, spaces and technical support to introduce young people to the tools for public consultation, communication and civic action that (hopefully) will become part of their lives is a key part of this process. Finally, information centres have become a key means for collecting, valuing and diffusing local memories and stories. It is an aspect of their role that deepens and reinforces the social bonds that sustain community, independently of the economic or political aims envisaged in their use of ICTs.

Case study: Allianza Solidaria

Allianza Solidaria is a housing co-operative in South Quito. Over 25 years, the co-op has built Ecuador's largest housing co-operative, creating quality affordable housing and a thriving community in one of Quito's poorest neighborhoods. The co-op has built 500 homes, self-financed by its members, and is on track to complete 800 more.

Through pure community effort, and using the traditional form of the Andean Minga for organising collaborative work, the co-op has transformed a garbage-filled ravine—long abandoned by the municipality—into Quito's first reclaimed commons, providing the city with its first bicycle path and a beautiful public park. It is the only ravine that has been reclaimed and repopulated with thousands of indigenous plant species, resulting in the greatest bio-diversity in the city.

The co-op has also created Ecuador's first co-operative school, run jointly by its teachers, parents, students and community members. The school is not only an international model for its innovation and its inspiring educational vision, but also ranks at the top of Ecuador's schools for the academic, sports and cultural achievements attained by its students. Here, the mode of learning, the co-operative values, and the participative structure of the school can serve as a prototype of schooling suited to the new social knowledge economy that Ecuador is seeking to promote.

Here is a case of public services—of education, of social housing, of public space and the promotion of bio-diversity—all developed to the highest standards by "auto-gestion", the self-organisation of the social economy.

In all these cases, the value of ICT is not one of tracking the views of large numbers of citizens in respect of a centralised service. The communication in the South Quito project is direct and personal. It takes place in face-to-face meetings and through involvement in voluntary working commissions organised on the traditional Minga model of the Andean communities. Where ICT is important is in the process of co-design, in the administration of the common project, and in accessing relevant international experience. The same approach of generative democratic practice can be mobilised in countless ways across the face of Ecuador, expanding and enriching civic practice and bolstered by the tailored use of ICTs to support this model.

In today's world, the legitimacy and relevance of public services depends on governments being able to harness the power of global information and

distributive technology to engage and empower citizens for realising the collective aims of civil society, just as the private market is learning to use the unique, de-centralising features of the same technology for the fulfillment of private ends.

The purposes to which ICTs are used will depend on the aims of those who have the power to design and deploy them. Control rights are everything. If those powers rest in the hands of corporate commercial interests there is no mystery as to how they will be used. If they are primarily in the control and service of the state without safeguards and checks on power, the attendant dangers of political abuse and surveillance are also equally clear. If the aim is to create a true social economy of knowledge whose primary purpose is the deployment of knowledge for common ends, then a new relationship based on shared goals and shared power between the social economy and the state is indispensible. The rights and powers of citizens and communities in the design and co-management of these systems are thus central to the nature and impact of their eventual effects.

Section 3 – ICT, social innovation and social capital

While it is clear that ICT has a key role to play in the ways a community accesses knowledge for the advancement of its social and economic goals, it is also clear that the ways in which members of a community relate to each other through social institutions is also a factor in whether knowledge is used as a social good and the degree to which ICT is used in the pursuit of social aims.

As indicated in recent research on the role of social capital in the sharing of knowledge, *how* this knowledge is created and diffused is greatly influenced by the quality of the relationships that exist among actors in a given community, and the levels of social capital that exist. For example, the more that producers or other actors engaged in local production activities are linked to their peers through networks characterised by sharing and mutual trust, the more knowledge is accessed, shared and combined to create new solutions for common problems. *Social innovation through the use of knowledge as a commons is directly related to social capital and its effect on knowledge access, diffusion and practical application.*

In their study of the literature, Zhihong Li and Fang Luo (2010) surveyed the role that social capital plays in the development of organisational learning and knowledge transfer within firms. What they found is that social capital plays a direct, and *often decisive*, role in the development of an organisation's capacity to create and adapt knowledge for purposes of competitive advantage and entrepreneurial innovation, and also for transferring knowledge both inside the firm and beyond. Moreover, the evidence suggests that different types of social capital can have different effects on an organisation's use of knowledge.

Social capital that is characterised by direct relations of mutual trust between two individuals (dyadic trust) is most conducive to the exchange and sharing of new knowledge. However, social capital that is characterised by the common norms and expectations of a whole community (generalised trust) is especially effective for organisational learning that is geared toward innovation. In both cases, social capital is a feature of networked relationships of trust and the stronger the bonds of trust that exist in a network the more these relationships can "create a platform and mechanism for careful and in-depth knowledge exchange and sharing within an organisation, while promoting organisational exploitative learning" (Leana and Buren, 1999).

The central role of social capital as a component of successful entrepreneurial performance and of regional economic excellence has also been shown by the experience of the flexible manufacturing networks of Emilia Romagna in northern Italy. These localised networks of small- and medium-sized firms are characterised by high degrees of knowledge sharing and co-operation in the shared production of highly specialised, high value products for global markets (Leana and Buren, 1999: 538-555).

A culture of co-operation has been decisive in the success of this region. The use of both formal and informal networks to access and share knowledge, to promote research and development, to analyse and access markets, and to promote training and human development has made Emilia Romagna among Italy's top performing economic regions (Restakis, 2010). With explicit reference to the impact of inter-firm co-operation and knowledge sharing, the region has become Italy's most intensive user of research and development facilities and now leads the country in the number of new patents registered (Bardi and Bertini, 2005).

This same idea of open access to knowledge is crucially important in the realm of scientific research. As NASA acknowledged in the 1995 report of the National Research Council, *On the Full and Open Exchange of Scientific Data*,

> International programs for global change research and environmental monitoring crucially depend on the principle of full and open exchange … Experience has shown that increased access to scientific data, information, and related products has often led to significant scientific discoveries and the opportunity for educational enhancement.

To this end, NASA has adopted a set of policies to ensure the free and open access to its Earth Science data to all users.[6]

What is true for the advancement of scientific research, or enterprise development is also true for the development and expansion of human service organisations in the social economy.

The rise of social co-operatives that specialise in the provision of a vast range of social services to Italians has been based in the formation of social networks that play a key role in the sharing of information and technology that are vital to the successful operation of these social enterprises (Restakis, 2010). There are now over 40,000 social co-ops that employ more than 280,000 people. Their scale of operations, their capacity to adapt to external pressures and to innovate solutions—particularly in the face of extremely demanding economic and political pressures—would be impossible without the support provided them through their social networks and the bonds of mutual trust and sharing that they have developed (Restakis, 2010).

The main point to be made is that it is the social relations of communications and knowledge sharing which are central, whichever technology is used.

For countries where low ICT levels predominate and where digital access is low (Ecuador, Paraguay, Bolivia, etc.[7]), an ICT policy that serves the aims of a social knowledge economy necessarily entails a careful consideration of how public policy can promote the development of those types of organisations and social institutions that are most suited to utilising ICTs for these aims. The support and expansion of civil institutions that reinforce the generation of social capital are an essential component of progressive ICT policy.

Moreover, if ICTs are to be considered as tools for the realisation of social, as oppose to purely private aims, there are implications for how ICTs are designed, managed and deployed. As stated at the outset of this paper, one of the criticisms leveled against the concept of smart cities is the fact that these technologies are controlled by large corporate interests with little interest in those values and applications that seek to make common goods of information technologies and the knowledge they can access. The corporate control of ICTs and the privatisation of knowledge are, after all, the foundation of contemporary cognitive capitalism.

By contrast, civil organisations—and indeed, the institutions of government—should have as their primary aim the production of social

goods that are available to all. It would seem therefore, that for ICTs to be realistically deployed as instruments of social benefit and the promotion of a democratic polity, there needs to be a democratisation also of these technologies, with a priority emphasis on the use of open standards and technologies. The mutualisation of information and communications systems should be encouraged wherever possible. *In short, the use of private, corporate systems of hierarchical control is incompatible with the deployment of ICTs to promote the general welfare through citizen empowerment and the democratic process. Hierarchical command and control structures do not yield democratic outcomes*.

One key area for consideration in this respect is the conversion of private telecommunications systems into public/civil enterprises in which users acquire control rights through a co-operative structure as has been done in jurisdictions like Argentina where the country's telecom provider has partnered with FECOSUR (Federation of Southern Co-operatives)—a consortium of telecom co-ops, to provide new cellular, fixed line, Internet and electricity services in rural communities.

Other examples include the telecom co-operatives of the U.S. The NRTC (National Rural Telecommunications Co-operative) currently provides high-speed Internet services, integrated smart grid technologies, wireless technologies, long distance programmes, mobile phone service, IP backbone services, and programming distribution rights for video providers to more than 1,500 rural utilities in 48 states.[8] The gradual mutualisation of ICTs through a combination of public and co-operative models offer one means of ensuring that ICT systems will remain accountable to civil, as opposed to capital and corporate interests, with a major role being played by individual citizen users of these systems.

In sum, there is an affinity between the values and aims of a social knowledge economy and those institutional structures that operate on those same principles of sharing, co-operation and social purpose that characterise a wide range of civil society organisations, and also of private and public enterprises that are networked to co-operate in the realisation of mutual aims. It is these same co-operative and commons-based structures, both inside organisations and among them, that are best suited for accessing ICTs for common aims and the pursuit of shared social goals.

Section 4 – Generative democracy: ICTs and the distribution of civil power

At the heart of the debate concerning the role of ICTs in a social knowledge economy are two fundamental questions. As outlined above, the first has to do with the nature of the interface between the state and civil society. This is essentially about the re-distribution and sharing of political power.

The second question has to do with the need to re-vision production for social benefit as impacted by the unprecedented organisational changes ushered in by the ICT revolution. This entails a radical shift in the state's understanding and role with respect to the economy as a whole, but especially of the public economy. The remainder of this paper will focus on this question and the emergence of what we have termed generative democracy as a central feature of a new, social form of governance that embodies the features and possibilities of a new, distributed paradigm of production that is now possible with the new technologies. To achieve this a re-alignment of the relative powers and roles of the state and civil society as expressed in the social economy is essential.

While clearly distinct in their structures and ways of operating, the state and the social economy share fundamental social aims that are realised through their distinctive social platforms and economic logics (Restakis, 2014). And, as argued in *Public Policy for a Social Knowledge Economy* (Ibid.), it is this consonance of social purposes that also provides the state with its political legitimacy. In both cases, state and civil, democratic practice and the social technology of distributed power for the design and production of goods and services offers a framework for understanding the potential of ICTs in either helping or hindering the realisation of the principles and practices envisaged for a social economy of knowledge.

In the public economy, democracy is one way in which the allocation of resources, the production of services, and the distribution of outputs are determined. The market does this in one way, the household in another, and the state through its various democratic forms in yet another. The social/solidarity economy has its own forms of organisation and the use of democracy for the pursuit of social aims is fundamental to these purposes. As shown above, the principles and aims of social economy organisations offer crucial advantages for how the precepts of Social Knowledge might be realised through the activation of social relations that both reflect and reinforce these aims. This is where the distributive operational logic of digital technology meets the distributed social logic of democratic practice.

In the early 20th century, the state's organisation of its governance and production systems was modeled on the knowledge economies of industrial capitalism and the private corporation—mass production and the eclipse of artisanship, the Fordist assembly line, and the managerial principles of Taylorism which focused on de-skilling (and de-humanising) manual labour, while concentrating design and operational control in a technical and managerial elite. Workers, as well as consumers, were not valued as conscious and self-determined subjects engaged in the productive process; they were the mute objects of an impersonal productive system. This was the classic, centralised, top-down governance model that was demanded by the industrial technology of the time and promoted by such influential figures as Andrew Ure, the high priest of this dehumanising process (Restakis, 2010).

The ICT revolution has demolished—and reversed—the centralising logic of this old model. Today, the emergent technology relies on the conscious production and application of globalised knowledge in a continuous process of innovation through de-centralised and distributed production networks (Benkler, 2007). In one key respect, ICTs have returned the focus to the individual and their personal connection to what is essentially cyber-social technology. What persists, however—particularly in the sphere of the public economy—are the old authoritarian power structures that struggle to manage and direct the design and provision of services with the mindset and control mechanisms of an age quickly receding into the past.

The closed and hierarchical systems of the mechanical age represent an anachronism and an impediment to the rapidly evolving needs of a social knowledge economy that thrives on open, rather than proprietary knowledge, and on the co-operative social and economic networks that are the matrices within which the new production forms are being modeled. These forms of open co-operativism are the nexus for the emergence of the digital commons and the free open source software movement (FOSS) that presents the digital archetype of this open and distributed social architecture.

The demand for wider citizen participation in public decisions and production, as well as access to state information, are symptomatic of these changes. Another is the growing individuation and specificity of demand—for both public and private goods—that is a central feature of contemporary consumer society. The advent of ICTs leaves little room, or justification, for governments to ignore or oppose these calls for the empowerment of citizens in these productive processes.

ICTs have opened up opportunities for new productive systems that bear on the organisation of many state services and the role of citizens and the social economy in their design and operations. Other aspects of state/civil relations that are affected by ICTs include:

- The relations of information in the operations of a Partner State, both as regards open operational information flows between partners, and the access of civil partners to the know-how of the state;
- The way in which the state gains its information about civil society/economy to inform the planning and delivery of its services

(how the state finds out about the nature of social demand);
- The information economy within the state and the degree to which there is open and co-ordinated information among different sections and agencies of the Government;
- The access to global know-how about public services both by government and its agencies and by civil society; and
- The development of new forms of distributed production and the potential for their decentralisation to the social economy.

All of the above are part of the state's social economy of knowledge. But both the traditional and the new need to be seen in the context of the radical changes in the nature of contemporary capitalist production and distribution, and of corporate organisation in the age of ICT. These include:

- The shift from mass production to mass customisation and the proliferation of product variety;
- The orientation of flexible/just in time production systems around the demands/needs of the consumer/user, resulting in the shift from the supply push of Fordism to the demand pull of post-Fordism;
- The increase in "produsage" and the involvement of the user/consumer in the circuits of design/production (from the private sphere, the example of Dell computers, of Lego technics or Toyota housing, and from the public sphere, education, chronic healthcare, recycling, tax assessment);
- The introduction of user ideas and feedback into the design and operation of products/services;
- The flattening of organisational hierarchies and distribution of the complexity of detailed planning and operations from the centre to the periphery;
- The accompanying redesign of the information flows within organisations and between organisations and their suppliers/markets, along with innovations in stakeholder involvement; and
- Further use of ICT in data mining (to further customise marketing), the crowd sourcing of innovation ideas, of solutions to problems, and in the design and performance of products.

In the private sector, those corporations that have involved their workers, suppliers and consumers directly in their planning and operation (for example, Toyota, Airbus and South West Airlines) have shown greater long-term success than those who continue to treat their stakeholders at arms length. In the Toyota case, the methods of involvement include delegation of authority to the shop floor, having stakeholders participate in monthly operational meetings, establishing supply chain networks for knowledge sharing, and the adoption of techniques of user-centred design (Post et al., 2002). In the case of Tesla Motors, Inc., which is the first major car manufacturer to make its cutting edge patents and designs open and freely accessible, the value of open knowledge systems to the improvement of its designs and the promotion of its products could not be more clear.

These and other companies have pioneered a particular version of a new social knowledge economy for use in the private market. But the adoption of these participatory methods for the production of social services by the social economy has been equally successful—both with respect to the satisfaction levels of front line workers and the end users of these services (Restakis, 2008; Borzaga, 2000).

These changes are now well established in the sphere of the private market, but they have also been part of the pioneering work of the social economy in the field of social care at least since the late 1970s (Restakis, 2010). However, their adoption has lagged behind in the public sphere. What is clear is that any discussion of increased democracy and participation in the conduct of the state must start from an appreciation of the changes that have been powered by the diffusion of ICT, coupled with the democratic governance structures of social economy organisations such as social co-operatives.

This is not to say that what is good for the private economy is equally good for the public, as is proclaimed—loudly and often—by the apostles of neo-liberalism. The point here has to do with the question of individual agency and the technologies that can harness the volition and interests of the individual, or the community, in the production of goods and services that respond to what people actually need and want.

However, the issue of democratic control and accountability is very different when it concerns the construction and operation of nuclear power plants than it is with the production of distributed energy systems based on small-scale wind turbines, solar PV, mini-hydro and so on. As we stressed earlier, technology and democracy are closely linked. The use of ICTs merely to replicate the centralised and hierarchical models of the past fails to understand the revolutionary potential of these technologies to liberate the role of the citizen and of communities from being mere *commentators* or *informants* on service design and construction, to being pro-active and autonomous *generators* of services through the democratic potential of ICTs, of user-controlled social organisations, and of government policies that promote their use for these ends.

The trend towards privatisation of public services has transferred much of the operational know-how and data to the private sector, leaving the state leached of professional capacity and knowledge, and the scope for citizen and workforce participation even more restricted. And, whether public services are administered through traditional state structures or through private sub-contractors, the scope for social economy involvement in their design and delivery is undermined.

An alternative path starts from the re-design and operation of public service systems so that they are more open to citizen engagement and the incorporation of social knowledge. User-led design has been a particularly fruitful technique here, taken over from the practices of commodity design in the private sector. Intensively involving the users, the front-line workers, as well as service managers, it has produced radical new designs for such things as prisons, schools, chronic disease treatments, social welfare services, elder care, and programmes for energy efficiency.

In all of these, users have varied capacities, needs and aspirations. They are also active participants in the effectiveness of any service (in the case of prisoners by avoiding re-offending). In many of them, a new 80:20 rule has emerged; traditional standardised state services use 80% of resources in administration and control and only 20% in the direct service. User-centred design has been able to reverse these ratios, cutting down hierarchies, engaging families and communities, and assembling different kinds of support for the active user, rather than providing them with the standardised services of the classical welfare state.

These and other similar examples are from advanced industrial countries with a long tradition of welfare services. In developing economies, the issues are more complex. They face a tension. On the one hand, there are many public services that are only now being expanded as universal. On the other, the emerging practices of customised and participative services are gathering pace internationally and paving the way for a new and more personalised model of distributed social care.

Similar tensions arise in the design and delivery of public utilities, such as energy, water, waste collection and broadband, as well as for services, such as housing and childcare. In all these cases there is a choice between centralised, standardised services, and customised, distributed ones that involve users directly in their design and operations. The latter provide the opportunity for a major expansion of what we can call generative democracy, where citizens participate directly in their services rather than indirectly through attempts to influence the design and operation of centralised service systems.

The management of this tension and the gradual transition to the distributed model of generative democracy presents a key challenge for government and thus entails a long-view strategy of social development, education and training that must accompany this process.[9] Not only this,

but the shift toward an engaged and distributed mode of civic participation in generative democracy entails substantive changes in state legislation and public policy with respect to access to information, to the design, control and operation of public services and public utilities, to the promotion of open source systems related to knowledge access and distribution, and to the employment of ICTs as instruments of civic empowerment. A number of these required changes are outlined in the appendix.

Civic networks and the institutionalisation of generative democracy

A final and crucial point needs to be made about the *means* by which such generative forms of democratic practice operate within the public, private, and social economies of the overall body politic.[10] It is one thing to say that a distributed and civically-engaged production logic is the key to a new form of political economy based on the notion of knowledge as a common good. It is quite another to create the conditions under which such a system could conceivably operate.

What is absolutely central to the success of such a system is the creation of particular spaces and opportunities for these models to be explored, experimented with, and refined for particular conditions and contexts. These are the "interstitial spaces" introduced earlier in this discussion. They are the places and the social mechanisms that permit the intensive and unhampered exchange of ideas, needs, practices and resources between civil society and the state that enable the use of ICTs to emerge as genuine tools for social and economic transformation.

In turn, this entails the development of civic networks and civic institutional intermediaries that can interact between citizens on the one hand and the varying levels of government and the decision and policy making apparatus of the state on the other. The citizen's assemblies of participatory budgeting, of Citizen Observatories, and of the Community Infocentres described above are variants of this. But the development of creative interstitial spaces also needs to take place within government itself, and at all levels—local, regional and national. It is through these dialogic spaces that these levels of government can transform discrete administrative units into spaces of generative democracy with links up and down between these levels that are fuelled through a constant flow of communications and interactions with the citizen networks that represent the means by which citizens mobilise their knowledge, desires, expectations and aspirations.

It is these institutional arrangements, at once stable and yet dynamic, that embed a culture of generative democratic practice in the design and decision-making processes of planning, designing, producing and monitoring. Generative democracy must be anchored in a different structure than that of the social economy alone or the state alone. It is a hybrid structure, a shared space, in which the operations, capacities, and cultures of both domains are transformed and reconstituted through the application of open and shared knowledge—accessed and amplified by ICTs—that makes generative democracy a seeding ground for innovation and social and economic transformation.

Concluding remarks

The cornerstone of the FLOK model is the free and open sharing of knowledge. Its founding philosophy is that knowledge and innovation are most efficiently developed in conditions of free and open collaboration. Far beyond neo-liberal conceptions of socio-economic development, this worldview embodies a vision of governance that centres on citizen-driven agency and citizen-driven institutions. In this paper, we have advocated a strong linkage between the principles of *Buen Vivir* and open government if coupled with the foundational principles of an informed, mobilised and connected citizenry. The role of the social economy in this regard is fundamental.

We have also explored the evolution of ICT use in Ecuador and elsewhere and the ways in which government policy has impacted the successful adoption of ICTs at the local level through progressive government initiatives, such as the introduction of PB and the installation of Community Infocentres. These experiences highlight the social and entrepreneurial aspects of successful ICT implementation strategies. The case of Allianza Solidaria illustrates the enormous potential of local, communitarian approaches for addressing issues such as housing, education and the reclamation of commons spaces.

The real possibilities of open government lay beyond conventional notions of representative democracy that typically focus on closed governmental institutions with citizens being largely excluded from playing a meaningful role in their operations. We have proposed instead, that the practice of open government must take place in the context of technologies that are not only designed to increase the efficacy of government, but even more importantly, to encourage and support new models of democratic practice. This is amply demonstrated in the use of Citizen Observatories by citizens in Spain to monitor, open up and improve the performance of municipal government in their locales.

Open government and the use of ICTs as empowering tools for civil society are essential aspects of a vision of social knowledge that both relies upon, and reinforces, the values of openness, sharing, co-operation, and democratic action in service of the common good. And if these are the driving values of government, as embodied in a vision such as that of Ecuador's *Buen Vivir*, the use of generative democracy as applied to the design and use of ICTs as a tool of public policy is the primary means by which these values are realised in practice.

Notes

[1] We are viewing the social/solidarity economy as a particular constellation of organisational forms within the broader civil society. In this framework, the social/solidarity economy is composed of those organisations that are engaged in the production of goods and services and that share the attributes of reciprocity, mutuality and social benefit that characterise this sphere of the economy.

[2] See also the evolution of the term "Third Space" in this connection by such writers as Ray Oldenburg, Edward Soja and Homi Babha.

[3] http://www.labsus.org, http://www.cittabenicomuni.it/bologna

[4] According to the COTAD Territory organisation law, the decentralised autonomous government (GAD) has, among other functions, the direct management of fund planning and execution.

[5] Success stories from the use of the community info-centese can be found at http://www.infocentros.gob.ec/

[6] http://science.nasa.gov/earth-science/earth-science-data/data-information-policy/

[7] ITU-UNCTAD Digital Opportunity Index (2007)

[8] http://www.nrtc.coop/pub/us/about/

[9] See Restakis (2014) for a more detailed presentation of this question.

[10] While this paper focuses primarily on the interface between the public and social/civil spheres, the relation of ICTs and generative democracy to the transformation of production systems in the private sector is also crucial. This issue is more fully explored in Restakis (2014).

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